



Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at <http://about.jstor.org/participate-jstor/individuals/early-journal-content>.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

$$1 + s_n^4 = u_n^2 \dots (4),$$

whence $u_n^2 - s_n^4 = 1$, and $u_n = 1$ and $s_n = 0$ are the only solutions. Now s_n cannot be 0 for if such were the case we would have

$$s_n = s_{n-1} = s_{n-2} \dots = s_1 = x = 0,$$

which is inconsistent with the definition of x . Hence the impossibility of (4) and therefore of (1) is completely demonstrated.

134. Proposed by F. P. MATZ, Sc. D., Ph. D., Professor of Mathematics and Astronomy in Defiance College, Defiance, O.

Solve neatly and briefly the equations

$$x^3 + x^2y + y^3 = 53 \dots (1), \quad y^3 + y^3z + z^3 = 13 \dots (2), \quad \text{and} \quad z^3 + z^2x + x^3 = 31 \dots (3).$$

Solution by G. B. M. ZERR, A. M., Ph. D., Professor of Chemistry and Physics in The Temple College, Philadelphia, Pa.

Probably the only brief solution is by inspection, as follows:

$$x^3 + x^2y + y^3 = 53 = 27 + 18 + 8 = 3^3 + 2 \cdot 3^2 + 2^3.$$

$$y^3 + y^3z + z^3 = 13 = 8 + 4 + 1 = 2^3 + 1 \cdot 2^2 + 1^3.$$

$$z^3 + z^2x + x^3 = 31 = 1 + 3 + 27 = 1^3 + 3 \cdot 1^2 + 3^3.$$

$$\therefore x=3, y=2, z=1.$$

135. Proposed by CHARLES C. CROSS, Whaleyville, Va.

Tangents parallel to the three sides are drawn to the in-circle. If p, q, r , be the lengths of the parts of the tangents within the triangle, prove that

$$\frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1.$$

I. Solution by M. A. GRUBER, A. M., War Department, Washington, D. C.

Let ABC be any triangle with the in-circle O . Put $AB=c$, $AC=b$, $BC=a$.

Draw the respective tangents, $DK=r$, parallel to AB ; $FG=q$, parallel to AC ; and $HI=p$, parallel to BC .

Let $AH=x$, and $BG=y$.

The construction of lines and similarity of triangles give the following:

$$HG=DE=r; \quad y:c=q:b, \quad \text{or} \quad y=cq/b;$$

$$\text{and} \quad x:c=p:a, \quad \text{or} \quad x=cp/a. \quad \text{But} \quad x+y+r=c.$$

$$\therefore \frac{cp}{a} + \frac{cq}{b} + r = c; \quad \text{or} \quad \frac{p}{a} + \frac{q}{b} + \frac{r}{c} = 1.$$

Solved in a similar manner by LON C. WALKER and J. SCHEFFER.

